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ADDRESS OF THE EDITOR

Malcolm Ellis, Hon. Editor, The Avicultural Magazine, The Chalet, Hay Farm, St. Breock, Wadebridge, Cornwall PL27 7LL, England.
E-mail: editor@avisoc.co.uk

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STRIGIFORMES AND PSITTACIFORMES: PHILOGENETIC LIKENESS OR CONVERGENCE?

by Paolo Bertagnolio

Resume

Can the poorly known feeding habits of captive owls be considered a circumstantial clue backing up the phylogenetic likeness of Strigiformes and Psittaciformes?

The basic difficulty in taxonomic analysis of large orders, as pointed out by Homberger (1980), is distinguishing between similar characters that indicate a close relationship of two or more taxa (homologous characters which have been inherited from a common ancestor) and similar characters which have evolved independently in response to particular environmental pressures (convergent characters).

The long debated question of which order or orders of birds parrots are most closely related to is still largely controversial. Peters (1937) placed the Psittaciformes between the Columbiformes and the Cuculiformes, while Mayr & Amadon (1951) pointed out morphological similarities with the Strigiformes, though excluding a phylogenetic link between the two orders. Based on a comparative study of the egg-white proteins, Sibley & Alquist (1972) came to the conclusion that parrots are a distinctive group of birds, whose nearest allies seem to be the pigeons. Burton (1974) also favoured the view that Columbiformes is the order more closely related to Psittaciformes and pointed out that several features of the Tooth-billed Pigeon *Didunculus strigirostris* show significant trends towards those present in parrots.

The morphological likeness of the pigeons and the primitive Malagasy genus *Coracopsis* has been stressed by Low (1992). According to Joshua (1994) both *C. vasa* and *C. nigra* have a karyotype which is not characteristic of other African parrots, suggesting their ancestors may have been from Asia. (Unlike any other parrot, when in breeding condition, the two *Coracopsis* spp. undergo peculiar metamorphoses, i.e. eversion of the cloaca

and in the case of *C. vasa*, the head of the female becoming bald and yellow.) Morphological and behavioural resemblances with *Coracopsis* can be observed within the Afrotropical Musophagiformes (or Musophagidae). Representatives of the genera *Tauraco* and *Corythaixoides* formerly at the CSCP (Centro per lo Studio e la Conservazione degli Psittaciformi) in compartments contiguous to *C. vasa* and *C. nigra*, showed a surprising convergence in general attitudes, especially when jumping to and fro and running along perches, and when jerkily moving their heads and necks in a typical excited manner unlike any other parrot except (as far as I am aware) *Ara chloroptera* and *A. rubrogenys*. Of particular significance could be the sunbathing postures of the turacos and *Coracopsis* which lay flat on a perch with partly spread wings and occasionally perch on the ground with the tail pointing upwards. Females of both groups (and occasionally macaws and the Palm Cockatoo *Probosciger aterrimus*) can also be observed with the tail erect when copulating. The harsh guttural sounds and melodic whistles of *Coracopsis* are atypical of parrots.

The broad and compact bill of *Coracopsis*, with no appreciable notches on the sides of it (vaguely reminiscent of the decurved upper mandible of turacos) could be considered an unspecialised, primitive psittacine type of bill. Suggestive of turacos also are the relatively long tarsi, rudimentary nuchal crest (perceivable in *C. nigra*), small head, long neck and tail, rounded wings (with slow wing beats), prominent naked cere, greyish-blue hues and the colour pattern of the tail, as well as analogies in secondary characters related to the colour of the bill of *C. vasa* and *Corythaixoides leucogaster*.

Fossil turacos have been reported from the late Eocene of Bavaria (Fry, Keith & Urban, 1988) and early Oligocene and the Miocene of France (Feduccia, 1980), and show that these birds were once widespread, at least in the Old World. The earliest fossil parrots are *Palaeopsittacus georgei* from deep clay deposits of the low-middle Eocene near Walton-on-the-Naze, Essex, England, and *Archeopsittacus verreauxi* from the upper Oligocene or lower Miocene of France.

Detailed analyses of DNA by Sibley, Alquist & Monroe (1988) threw some new light onto the question. Though confirming that parrots stand alone as a discrete group, such analyses indicate that their DNA shares certain characteristics with that of other clusters of families, including the swifts (Apodiformes), trogons (Trogoniformes), owls (Strigiformes) and cuckoos (Cuculiformes) and that, in spite of shared crop milk and a fleshy cere, the pigeon-parrot link may be more tenuous than previously considered. According to Sibley & Alquist (1990), albeit parrots and pigeons share some characteristics, they differ in so many ways that a close relationship cannot be supported.

Morphological and ecological convergence towards Strigiformes show up in the nocturnal Kakapo *Strigops habroptilus*, though here stress must be

put on convergence. Generally speaking, parrots are considered to be vegetarians, though there are a few prominent exceptions. In New Zealand the diet of the Kaka *Nestor meridionalis* includes grubs, while in the same country the Kea *N. notabilis*, besides grubs, grasshoppers, snails, rats, mice, rabbits and nestling birds, may occasionally feed on sheep and Red Deer *Cervus elaphus* carcasses, and even attack dying animals trapped in the snow (Diamond & Bond, 1999). The small kakarikis *Cyanoramphus unicolor* and *C. novaezealandiae hochstetteri* of the Antipodes Islands feed largely on the carcasses of penguins and other vertebrates washed up onto the shore by the surf, similarly to the now extinct *C. n. erythrotis* of Macquarie Island. In Australia cockatoos of the genus *Calypthorhynchus* eagerly devour grubs they attain when stripping bark off *Eucalyptus* and other trees (replacing woodpeckers not represented on that continent), while insects and insect larvae are included in the diets of a large number of Australian cockatoos, parakeets and lorikeets (*Callocephalon*, *Eolophus*, *Cacatua*, *Platycercus*, *Barnardius*, *Psephotus*, *Northiella*, *Trichoglossus*, etc.) (Saunders, Rowley & Smith, 1985; Wyndham & Cannon, 1985; Rowley & Chapman, 1991; Sindel & Gill, 1996; Higgins, 1999, etc.). Remains of grubs and insect larvae have been found in the stomachs of *Agapornis swindernianus* in Africa, as well as in the stomachs of convergent *Micropsitta* the diminutive parrots of New Guinea and nearby islands (Forshaw, 1989). In South America both the Golden-winged Parakeet *Brotogeris chrysopterus chrysosema* and the Hyacinth Macaw *Anodorhynchus hyacinthinus* are known to feed on small water snails, molluscs, worms and beetle larvae, and insect larvae are sought by Scarlet Macaws *Ara macao*, Red-bellied Macaws *Orthopsittaca manilata*, Barraband's Parrots *Pionopsitta barrabandi*, *Aratinga* spp. and *Pyrrhura* spp. (Roth, 1989). In the Caatinga of Minas Gerais, Brazil, a flock of Golden-crowned Conure *A. aurea* was seen catching winged termites on the ground as these emerged from a terrestrial termite nest (Sick, 1993).

It is very likely that animal proteins are included in the diets of a larger quota of parrots (if not all of them) than is generally thought. Palm Cockatoos in West Papua (formerly Irian Jaya) (fide Soendji in Bertagnolio, 1994) occasionally feed their offspring small reptiles and other small vertebrates. Attenborough (1980) described how a flock of Quaker Parakeets *Myiopsitta monachus* in Argentina flew down and noisily gorged themselves on strips of meat hanging from a line to dry.

All parrot species at the CSCP relish raw minced meat and *Cacatua*, *Psephotus*, *Alisterus*, *Loriculus* spp. and others at breeding time avidly devour mealworms, at which time their consumption of dry seed drops conversely. Many of the larger species (*Ara*, *Anodorhynchus*, *Amazona* and *Psittacus*) enjoy raw chicken necks and pink mice, and on one occasion I watched a male Pesquet's Parrot *Psittichas fulgidus* in a large aviary dash from the

perch and seize a mouse in its bill, which it then dismembered and devoured, using the rear part of its tongue to force pieces of the meat back into its gape. More than once I have noticed two Palm Cockatoos share a mouse one of them was firmly holding with one of its feet, though I am unable to say whether the mouse was killed by the birds or was picked up from the aviary floor when it was already dead. Similar behaviour by a Blue-fronted Amazon *A. aestiva aestiva* was witnessed recently, during which a Mitred Conure *A. mitrata* in the same enclosure tried to join in the 'banquet'. Breeding Red-capped Parrots *P. pileata* formerly at the CSCP used to dig in ant nests searching for stored seeds and insect larvae.

From the above examples one might hypothesize that analogies in beak morphology in Psittaciformes and Strigiformes are the result of similar functions in the past rather than mere convergence, and that the two groups split from a common carnivorous/frugivorous ancestor. As pointed out by Smith (1975), if it did not have such a small gape a parrot's bill would rather resemble that of a birds of prey.

While a quota of animal proteins are included in the diets of the majority (if not all) parrots, owls may not be as strictly carnivorous/insectivorous as normally considered. In this context it is of interest to mention a strange liking for vegetable matter by at least two species of the order Strigiformes.

For more than 20 years (up until 1995) the CSCP also acted as a rescue centre for birds of prey on behalf of the Italian League for Bird Preservation. During that time thousands of specimens were temporarily cared for here, including a number of Scops Owls *Otus scops*. These were fed day-old chicks, pink mice, mealworms, crickets, locusts and a little red meat. It was not until 1990 that I had the opportunity to observe an unusual feeding behaviour by this species.

At that time the premises were crowded and we were required to put four Scops Owls in a flight cage (3m x 1m x 2m (approx. 9ft 9in x 3ft 3in x 6ft 6in)), part of a row housing *Aratinga* conures. One evening at dusk when I was checking the flights from some distance through a pair of binoculars, I noticed one of the owls trying to reach through the wire partition to peck a piece of apple in the nearby compartment. From that time on apple became a regular item of food for these owls and was readily sought after by all of them. Other fruits and vegetables such as water melon, ripe figs, bananas, cherries and apricots, as well as endive and lettuce, were successfully tested. The liking for apple, figs and lettuce was confirmed by Giampaolo Rebecchi, who told me that in midsummer in his former collection the preferred food of the Scops Owls was vegetable matter and that animal proteins were only second choice. Lettuce leaves being eaten by captive adults was quoted by Koenig (in Cramp, 1985) and Dr Giacomo Dell'Omo told me that Tawny Owls *Strix aluco* in his possession eagerly devoured ripe cherries.

Fruits and other vegetable matter are rapidly digested and under normal condition no detectable traces of them are left in the pellets or stomachs of wild Scops Owls. Plant material has been however recorded by Uttendörfer (in Cramp, 1985) and plant fibres by Fry, Keith & Urban (1988). Plant remains in Tawny Owl pellets were quoted by Gruzdev & Likhachev and by Thiollay (in Cramp, 1985).

Another strange behavioural habit, this one involving Little Owls *Athene noctua*, is worth mentioning. Every year when all the rescued Little Owls (up to 30-40 on average) were released, the perches in their communal flight (natural branches of different sizes and consistency) looked far thinner or had been completely destroyed, while the wooden boxes (normally disused parrot nest-boxes into which the birds used to shoot like bullets when their enclosure was approached by humans) had been largely reduced to sawdust, a convergent gnawing behaviour reminiscent of parrots and crossbills *Loxia* spp. rather than owls.

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Paolo Bertagnolio, Centro per lo Studio e la Conservazione degli Psittaciformes, Via Luigi Russo, 78, 00050 Aranova, Rome, Italy.

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BEALE PARK DAY

Members of the Avicultural Society have been invited to join members of The Parrot Society UK (whose recently elected Chairperson is Cliff Wright) and members of other bird societies and clubs at Beale Park Day, Sunday July 3rd 2005. Curator of Birds, Dave Coles, is keen to encourage bird societies and clubs to join together to view the collection and enjoy the facilities. There will be a concessionary half-price charge on the day.

The park, in which a number of new aviaries has been opened recently, including a walk-through Australian aviary dedicated to the late Ron Oxley, has a good and varied collection of birds including Wonga Pigeons, ground doves, peacock pheasants, Bali Starlings, laughingthrushes, tanagers, tinamous and Cobalt-winged Parakeets.

It is located on the A329 north-west of Pangbourne, Berks.

BREEDING THE RED-WINGED STARLING, INCLUDING AN ATTEMPT TO START A BREEDING COLONY

by Louise Peat

The Red-winged Starling *Onychognathus morio* is considered to be one of the more successful species of African passerines. It ranges from eastern Sudan and Ethiopia southwards through eastern Africa to South Africa. It is commonly found in urban areas where it takes full advantage of nesting and feeding opportunities in and around human habitations. It is sexually dimorphic, the adult male having a black head with an inky-blue sheen, and the adult female having a grey head and neck with some dark streaking. It is monogamous and pairs possibly mate for life. If nesting places are limited, several pairs may nest together in a loose colony. Outside of the breeding season Red-winged Starlings may gather in flocks of up to 500.

History

Red-winged Starlings first arrived at the Cotswold Wildlife Park, Burford, Oxon., UK, in June 1993. A related pair was acquired from a private collection, the female of which was later exchanged for an unrelated bird. A year later in 1996 after the female had not been seen for a couple of days, the nest-box was inspected and she was found dead inside. In March 1997 a new female arrived from Cricket St Thomas and two years later she laid her first egg, which was found smashed. The following year she laid another egg which suffered the same fate. At that point (July 2000) we decided to move the pair to a quieter aviary on the pheasant section.

There the pair shared the aviary with a male White Eared Pheasant *Crossoptilon crossoptilon drouynii*. The starlings settled in well and appeared to enjoy their new-found privacy. Both of the birds were hand-reared and very steady around me, the male would even fly to my hand for mealworms. That summer no breeding behaviour was observed, in fact the pair seemed pretty much incompatible; the female would sporadically chase the male, but this would last for only a few seconds.

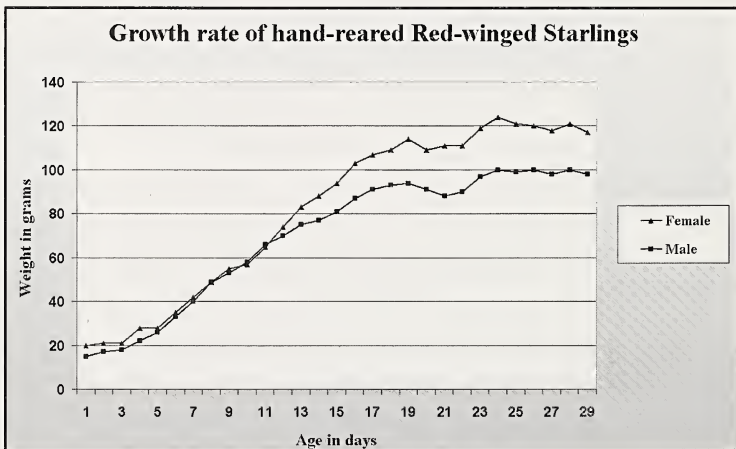
Observations and breeding 2002

In 2002 the behaviour of the birds started to change; the male was seen to be taking more interest in the nest-box and would gather as many mealworms as he could in his mouth and then parade in front of the female calling. However, at no point did he offer her the mealworms, instead he seemed to get bored and swallow them himself. Various nesting materials were made available to the birds, including dried grass, straw, small twigs and a plastic D-dish filled with mud, which during the peak of the nest building had to be re-filled three times a day.

The male did not get involved with the nest building, which to me was very strange as everything I had read on the subject stated that it was a joint effort. I thought it might indicate that the birds had not bonded fully, so I was delighted when I came in one morning and the female was missing. It was obvious that she had begun sitting. During the first week of incubation she come off the nest only to eat but during the second week she was off every time I went near the aviary, no matter how quietly I approached it. I began to fear that she was no longer sitting, but bearing in mind this is quite common behaviour with starlings, I gave her the benefit of the doubt.

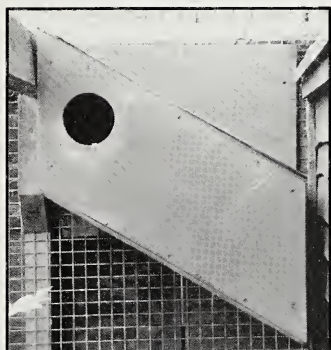
Disaster struck on June 7th when the female attacked and killed the male. I can only assume that when the chicks hatched she perceived him to be a threat. The next day she was seen hitting a dead chick against a rock in the aviary. Unsure as to whether the chick was already dead when she had removed it from the nest or whether she had killed it, we decided to intervene and remove the remaining two chicks and hand-rear them.

They were reared on a diet of waxworms, crickets, mealworms and fruit. They were fed at two hourly intervals from 6.00am-10.00pm. They fledged at 25 days old, and at exactly three months old, the shyest of the two began to show grey flecking on the head and neck, indicating that she was a female. The other was a male.

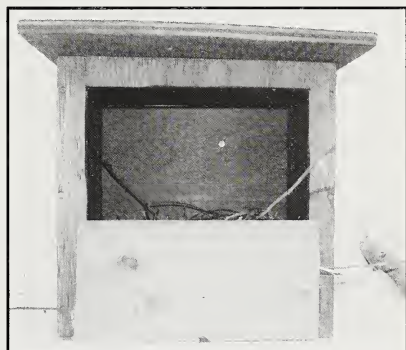


After the removal of the chicks, the female began to build a new nest and laid a second clutch of eggs. She laid the first egg 11 days after the male was killed and 10 days after the removal of the chicks. On the slim chance that the eggs might be fertile they were removed for artificial incubation but unfortunately all four proved to be infertile. Much to my surprise she then went on to lay a third clutch, and that time I decided to leave the eggs with her and take the opportunity to observe her nesting behaviour, without the fear of harming viable eggs.

Once weaned the two hand-reared young were placed in the adjoining aviary to the adult female. Their arrival was met with much interest from the female and her initial growling was soon replaced by curiosity. When we were sure the female had stopped laying and lost all interest in breeding we opened the slide between the two aviaries. To my surprise there was no aggression and within half an hour of opening the slide all three birds were sitting together on the same perch.



Nest-box 1 (outside).



Nest-box 2 (inside).

Forming a colony

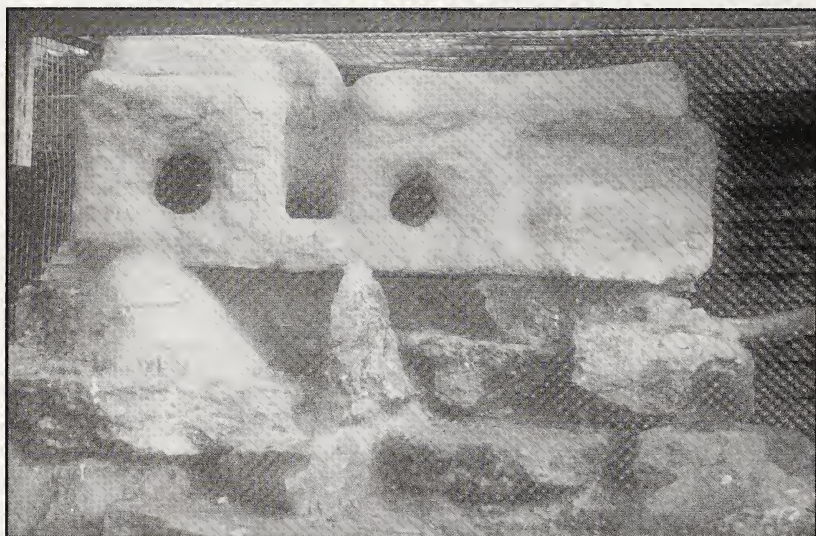
At the start of 2002 we had discussed keeping Red-winged Starlings in a group. I had heard of a private breeder, Peter Horn, who had two nests with chicks. Two pairs were reserved, which would have allowed us to make up three pairs. Mr Horn eventually offered us all his birds, three males, two females and four juveniles, which arrived in October 2002. They were housed next door to our trio, to give them a chance to feed and get used to the aviary. The next day the pop holes were opened and all 12 birds were allowed to mix. The two hand-reared birds fitted in instantly, but our adult female was less sure and began growling and there were a couple of attempts to chase some of the younger birds. Luckily her behaviour soon changed and she became increasingly interested in the unpaired male. The two were often seen perched together, and within a week the female was seen preening the male.

The next day the birds were more vocal and I was amazed to hear several vocalizations from the group that I had not heard before. Also interesting was the bond between the two breeding pairs. I observed behaviour that I had never seen from our original pair. Each pair was constantly together and for the first time I observed mutual preening. This made me realise how unstable the bond had been between our original pair, and how it could explain the aggressive behaviour of our female towards the male. It also supported the theory that Red-winged Starlings may mate for life.

Although the flock of 12 birds got on well, I knew that when the breeding

season came around, having that large a group of birds together would pose problems. We did not for example want to take the chance that some of that year's juveniles might pair up with their siblings. We decided that all the juveniles would be paired to unrelated birds and placed on loan with other collections. This would leave the park with three unrelated pairs, two of which were bonded and proven breeders. These would be the start of our breeding colony.

To see if the birds would nest in a colony, a natural looking cliff or rockface was built. It was made from wood and polystyrene, which was covered with a layer of cement and made to look as natural as possible. It includes four tunnels and a ledge, each big enough to hold a nest. Three of the tunnels have observation doors so that we can observe what is happening inside.



Natural looking cliff or rockface.

The 2003 breeding season

Signs of breeding behaviour began earlier than expected. The blue pair started nesting on February 1st and by March 1st the pair had completed the nest and laid the first egg. Even though this pair was by far the more dominant, there was at that point no increase in aggression. Only the female incubated the eggs, whilst the male constantly stood guard close to the nest site. Any disturbance would cause the female to come off the nest and join him.

On March 15th the first chick hatched, followed by the second and third on March 16th and 17th. Because we had hand-reared the earlier chicks, I had never observed parental feeding. Much to my surprise the parents would

kill and mash-up the livefood before feeding it to the chicks. This was done by striking the insects on rocks in the aviary. They also removed the legs and wings of the insects. As the chicks got older the parents were less careful about mashing-up the livefood, and after approximately 12 days, whole and live insects were fed to the chicks. They also showed more interest in feeding mealworms to them. Both parents took an active part in feeding the chicks. Livefood was provided every two hours from 7.00am-5.00pm. Crickets and waxworms were offered initially, then as the chick got older locusts and mealworms were also provided. The adults also had access to their usual food, but very little of this was eaten.

The female was observed collecting the chicks' faecal sacs more frequently than the male. These were collected during feeding periods; she would carry them to the feeding area (the feeding platform was 4ft (approx. 1m) from the nest), drop them, and then carry on feeding. The male would then pick up the sacs and take them further away from the nest.

On March 1st the green pair began nest building and by April 8th three eggs had been laid. At that point this normally docile pair became a lot more territorial and both the blue and green males began to harass the hand-reared red male. Disappointingly the latter had not managed to bond with our original female and showed increased signs of being imprinted and preferring human companionship. Whenever the keeping staff were servicing the aviary his behaviour would change and the other two males would chase him; this stopped as soon as the keeper left. This behaviour was monitored closely. On April 15th when the blue pair's chicks fledged, the aggression towards the red male increased, so the decision was made to remove him from the aviary. At that point the original female became ill and was removed so that we could monitor and treat her.

The blue pair's chicks first showed signs of fledging on April 13th (almost a month after hatching), when one of the chicks came out of the nest for a short period but then returned for the rest of the day. The parents had begun reducing the amount of insects fed to them, and whenever they were away from the nest, judging by their different calls, were possibly trying to encourage the chicks to leave the nest.

When the chicks fledged on April 15th, they lacked flying skills and spent a lot of time on the floor of the aviary. It was at that point that we began to have concerns about the level of aggression within the group. The green pair was incubating eggs and had become much more territorial and the blue pair's newly fledged chicks appeared ignorant of the threat the pair posed, and their clumsy attempts at flying seemed to provoke aggression from the green male. In order to give the chicks a chance to 'find their wings' the pop holes between the two aviaries were closed. From that time onward there never seemed to be a suitable opportunity to re-open the pop

holes. One or other pair always had chicks at a stage when it would have been too risky to reintroduce them.

On April 16th the blue male was seen carrying nest material and displaying to the female, and was building a new nest on top of the earlier nest. By the end of the month a second clutch of three eggs had been laid and the pair was showing signs of becoming aggressive towards the three juveniles fledged from the earlier nest. These were moved to an off-show aviary in which they were later joined by our original female, which had made a full recovery.

The three juveniles were very unsettled in their new aviary and we felt that by putting our original female in with them, she might have a calming effect on them. This worked better than we ever expected, she took on the role of surrogate mother, and was in no way aggressive. Their stress levels decreased dramatically, and because the female was steady around people, her calmness influenced the behaviour of the youngsters and made it easier to service the aviary without the young birds panicking. Two juveniles fledged by the green pair and a juvenile from the blue pair's second clutch later joined the group.

Slowing them down

Both breeding pairs were focused on producing as many chicks as they could. No sooner had their chicks fledged than they would set about nesting again. Such an exhausting process would inevitably begin to take its toll on the birds, so rather than risk their health, we decided to limit their breeding. After the two pairs had between them reared a total of eight healthy chicks we began to encourage them to slow down. This was done by reducing the protein in their diet and by removing their last clutches of eggs. After breeding had ended the blue and green pairs were allowed to join each other again and behaved as so they had never been separated, with no aggression being witnessed.

General husbandry

When keeping a group of Red-winged Starlings together the most important factor is the feeding regime. We ensured that within the aviary there were several feeding stations. It quickly became obvious that certain pairs were territorial over certain areas of the aviary and these areas included the feeding stations and the houses. If the number of feeding stations had been reduced the amount of aggression would have increased dramatically. It is important to make sure there is always sufficient food available. On the few occasions that all the food had been eaten, there was a rise in the level of aggression within the group which resulted in less dominant birds being attacked.

Diet

Through the winter the group's diet consists mainly of finely chopped apple, pear, tomato and greenfood (lettuce and watercress). This is supplemented with other fruits that are available, such as pawpaw (papaya), banana, grapes, melon etc. To add variety to the diet we use one as a treat each day. The group is also given sultanas that have been soaked and, once a week, oranges cut in half. Seasonal berries are given and are devoured with enthusiasm. A small amount of meat is included in the diet, bulked out by mixing it with soaked Diet A pellets and an insectivorous mixture. Livefood is offered only infrequently. Neutrobal vitamin supplement is sprinkled over the food twice a week.

Leading up to the breeding season the diet is changed, with the quantities of meat being increased and more livefood made available. When chicks have hatched, livefood in the form of mealworms, locusts and waxworms, is given up to five times a day.

Water

Water is supplied at each feeding station. This is changed daily. The starlings love to bathe and during the breeding season use the water to dampen the mud used in the building of their nests.

Nesting

Large quantities of mud and other nesting materials need to be supplied during the breeding season. Pairs will sometimes re-use nests built in previous seasons and it is worthwhile checking such nests to ensure that they are clean.

Housing

Our starlings have access to two houses, each of which contains a feeding station and although they are quite hardy birds, the houses have heat lamps which are switched on during winter evenings.

Identification

Each pair is fitted with colour coded rings and their offspring have coordinated colour rings, plus an extra colour to indicate which clutch they were from. These enable us to identify individuals within the group.

Summary of results of observational study

Several conclusions can be drawn from the results. Taking each pie chart in turn and comparing the different pairs, straight away (Pie chart 3) it is obvious that the two birds of the red pair had not bonded. It is very noticeable that they spent the majority of their time vocalising and self-preening. One can only assume that they were vocalising in an attempt to

Table 1. Outline of observations made during 2002 breeding season.

March 2nd	Male seen taking an interest in nest-box, which he entered a couple of times.
May 7th	Female started building a nest in a food bowl inside house.
May 8th	Female changed her mind and instead started building a nest in nest-box in aviary.
May 22nd	Female coming out of box only to feed. Both birds are silent.
June 5th	Female very interested in insects, so ration is increased.
June 7th	Male killed by female. Late afternoon chicks heard in nest-box.
June 8th	Female seen hitting dead chick against a rock. Remaining two chicks taken to be hand-reared.
June 11th	Female building nest in food bowl.
June 12th	Female turns her attention to building in half-open-fronted box (Nest-box 2) inside house.
June 18th	First egg of second clutch laid between 9.00am-9.30am. Female silent.
June 19th	Second egg of second clutch laid between 9.00am-9.30am.
June 20th	Third egg of second clutch laid. All three eggs removed for artificial incubation.
June 21th	Fourth egg of second clutch is laid and is also taken for incubation.
July 1st	First egg of third clutch laid.
July 2nd	Second egg of third clutch laid.
July 3rd	Third egg of third clutch laid.

Table 2. Weights and measurements of second clutch of eggs, all of which proved to be infertile.

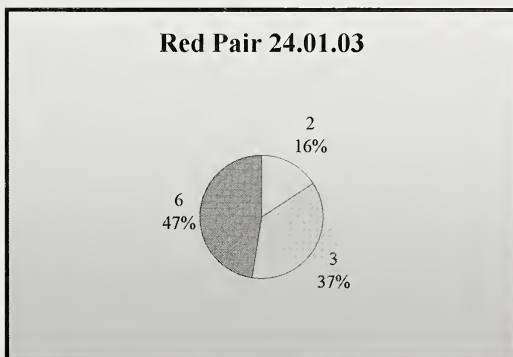
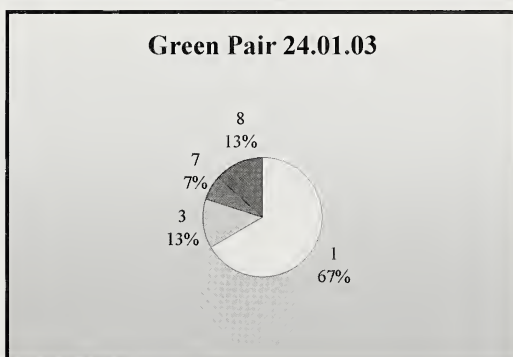
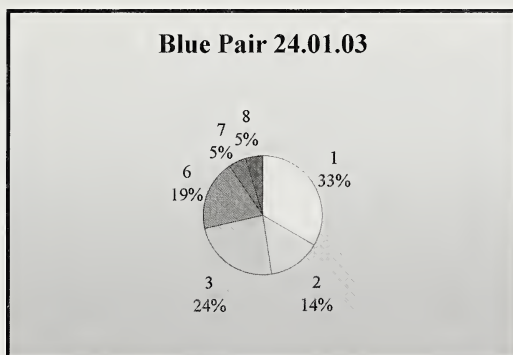
Egg	Weight	Measurements
1	10g	38mm x 22.3mm
2	10g	36.9mm x 22.9mm
3	9g	38mm x 22.8mm
4	9g	37.8mm x 22.9mm

Table 3. Information gathered from two nests built by female.

Nest-box	Total area covered by nest material	Circumference of nest cup	Depth of nest cup
1	12in sq (305mm sq)	6in (152mm)	3½in (90mm)
2	10in sq (255mm sq)	5in (127mm)	2½in (63mm)

Pie Charts 1-3

Observations of group outside the breeding season.

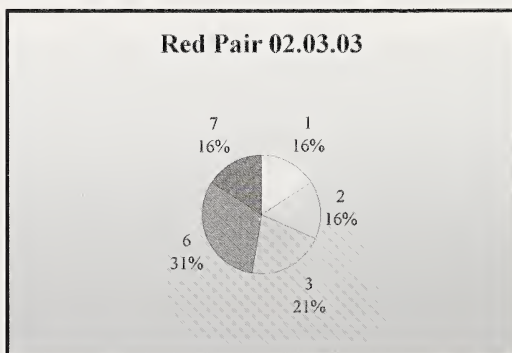
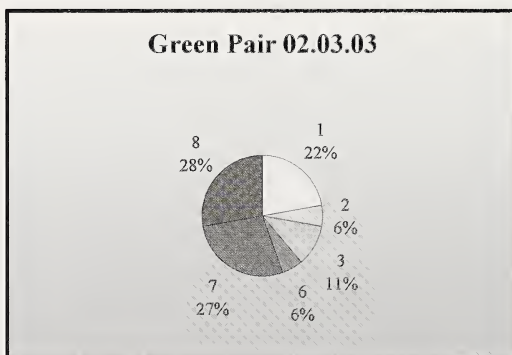
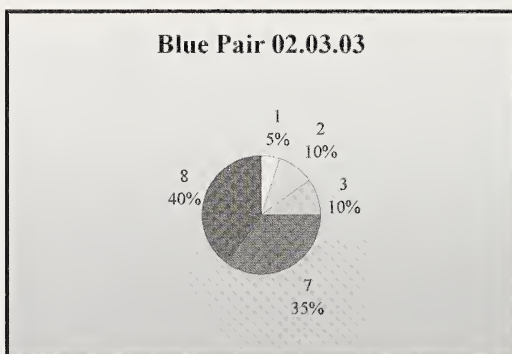


Key

- | | | |
|---------------------------------------|------------------------|----------------------------|
| 1 Social interactions with each other | 5 Physical display | 9 Inter-male aggression |
| 2 Social interactions with group | 6 Vocalising | 10 Inter-female aggression |
| 3 Self-preening | 7 Male nest interest | 11 Group aggression |
| 4 Mutual-preening | 8 Female nest interest | 12 Inter-pair aggression |

Pie Charts 4-6

Observations of group at start of breeding season when blue pair had laid eggs.

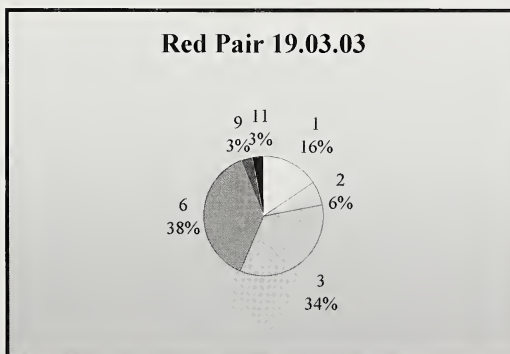
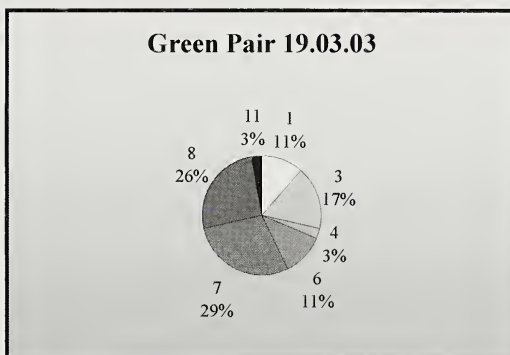
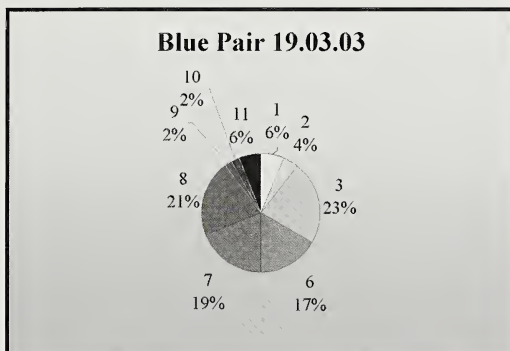


Key

- | | | |
|---------------------------------------|------------------------|----------------------------|
| 1 Social interactions with each other | 5 Physical display | 9 Inter-male aggression |
| 2 Social interactions with group | 6 Vocalising | 10 Inter-female aggression |
| 3 Self-preening | 7 Male nest interest | 11 Group aggression |
| 4 Mutual-preening | 8 Female nest interest | 12 Inter-pair aggression |

Pie Charts 7-9

Observations of group when blue pair's chicks had hatched.



Key

- | | | |
|---------------------------------------|------------------------|----------------------------|
| 1 Social interactions with each other | 5 Physical display | 9 Inter-male aggression |
| 2 Social interactions with group | 6 Vocalising | 10 Inter-female aggression |
| 3 Self-preening | 7 Male nest interest | 11 Group aggression |
| 4 Mutual-preening | 8 Female nest interest | 12 Inter-pair aggression |



One week old.



Two weeks old.



Three of four eggs in second nest.



Fourth egg still in nest.

attract a more suitable mate or attempting to bond with each other. The self-preening could also be interpreted in a number of ways, it could for example have been to help attract a mate, insecurity (both had a low status within the group) or perhaps even frustration.

In pie chart 6 it can be seen that at the start of the breeding season vocalisation and self-preening decreased (the male began to parade around with nesting material) and both birds were spending more time together. At that point it was felt that the pair was starting to bond. However, in pie chart 9 it can be seen that the levels of vocalising and self-preening had risen again. This could have been as a result of aggression from the blue pair, which at the time had chicks. The red pair was continuing to interact with each other but all nesting behaviour had ceased. Shortly after this the two birds were removed from the aviary for the reasons given earlier.

In pie charts 1&2 it can be seen that the birds of both the dominant blue pair and the green pair spent a lot of time with their partners outside the breeding season. It is also interesting to note that even outside the breeding season both pairs were very interested in the nesting areas. The dominant blue pair spent more time interacting with the red pair and also spent much more time vocalising than the green pair. Without further study it is not possible to understand whether this was because the birds of the blue pair had a strong enough pair bond that they did not need to reinforce it as much as those of the green pair, or that the opposite was the case and the birds of the blue pair were not as committed to each other as those of the green pair, the male and female of which spent almost all of their time together with very little interaction with other group members.

With such a small study sample it would be wrong to draw any concrete conclusions from this data. Nevertheless, I feel that our results have raised several interesting points and I hope that someone else will take up the challenge and take this study further.

Provisional conclusions

The excitement of breeding this species was easily surpassed by the experience of keeping the birds in a group. Although they had to be separated for a short period during the breeding season, I continue to believe it is possible to keep them in a group.

Had the nesting of the two pairs been synchronized, as a result of which the chicks had fledged at the same time, perhaps the adults would have been more tolerant of the fledglings. Also, had the aviary been larger and/or had denser cover, we may have been more successful. Either way I think that the quality of life of these birds is much improved if they are kept in a group, and I would recommend this as being the best way to keep them.

Pairs though may need to be separated during the breeding season. One way of doing this is to keep them in an aviary that can be sectioned off whilst the pairs are breeding.

I am sure they could be kept in a single sex group all year round and would make a fascinating display for the general public, giving them the opportunity to better appreciate such a magnificent understated species.

Follow up

There are several other points I wish to follow up. The main one being whether or not hand-reared birds will breed successfully. Our problems with the original pair, which did not have a strong pair bond, may have been as a result of both birds having been hand-reared. I am waiting to hear back from the collections in which we placed our 2002 hand-reared birds, whether or not these birds managed to form strong pair bonds with the parent-reared birds with which they were paired.

Afterthoughts

I have learnt so much over the past two years during the course of this study. I remain convinced that under the right conditions it should be possible to establish a breeding colony of Red-winged Starlings in captivity. One of the main benefits of keeping this species in a group is that when kept this way they appear (and I apologise for being anthropomorphic) to get so much more out of life. I am an avid believer in displaying group birds in a group, which I guess is stating the obvious.

The primary point here is improving husbandry. With a little extra effort we can give many species a more natural lifestyle and vastly improve their quality of life.

Acknowledgements

I would like to thank Christina Wells for her observational studies on our group of Red-winged Starlings. She spent many days braving the elements and undertook the study with determination and enthusiasm. Because I was limited in the amount of time I could devote to the study, a lot of data would have been missed without Christina's input. Her results are produced in the very informative pie charts.

I would also like to thank Dave Edgington, who at the start of this study was my Section Head and is now Curator of the Cotswold Wildlife Park collection. He allowed me to try out my theories, and without his backing and support the study would not have happened.

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Louise Peat is a bird keeper at the Cotswold Wildlife Park, Burford, Oxon. OX18 4JW, UK. Tel:01993 823006/Fax:01993 823807/Website: cotswoldwildlifepark.co.uk

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CORRECTION

In the previous issue of the magazine (Vol.110, No.3, pp.104-107 (2004)), in Magpie rescuing its mate from a Carrion Crow and other crow versus magpie encounters by Derek Goodwin, the first sentence of the fourth paragraph (p.104) should have read: "I have twice seen Wood Pigeons and once a feral pigeon grappled in flight by a crow...". This got changed to: "I have twice seen Wood Pigeons and once a feral pigeon grappling in flight with a crow...". This was incorrect. As Derek has written to point out, pigeons do not "grapple" when fighting or trying to escape. I apologise for this error. Hon. Ed.

BREEDING THE GREEN ARACARI *Pteroglossus viridis*

by Chris Iles

It was the last week in April and I was sure I had heard a slightly different “chirrup” that morning. I fetched my stepladder and climbed up towards the nest-box. I remembered deciding that the nest-box was not quite in

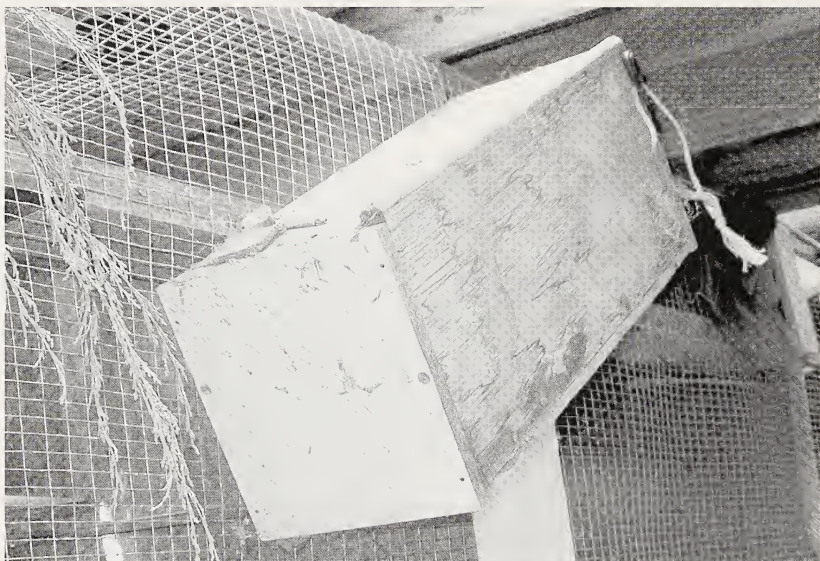


Parents and young Green Aracaris.



One of five young bred by the author.

keeping with what the birds would have chosen in their natural habitat. The box had been made quickly from two right angles from an old set of stairs,



Quickly made nest-box in which the pair bred.



Eggs in box.

with a piece of melamine nailed on the bottom. The inspection lid was a further piece of recycled melamine held on by a rubber band. It was nearly 2ft (61cm) down to the bottom of the angled box, where on a bed of woodchips was a pure white egg. My Green Aracaris had laid!

I had acquired them the previous year from Phil Cleeton, a fellow member of the Avicultural Society. I considered them to be in exceptional condition and was confident that they would tolerate an outside aviary immediately. Having watched them in their 'hopping mode', it was decided that they would be best suited to living in a square aviary. However, they did not seem to settle at all in the square aviary, so were moved to the aviary next door which although it covered a smaller area, was 6m (approx.20ft) long. In this aviary they were able to fly directly from end to end, which they seemed to enjoy.

The advice in my collection of books was that if they were to survive, I should feed them nothing but fruit and low iron fare, and from the outset I followed this path. They never seemed enthusiastic about this diet though, so I decided to dump the 'rule book'. I provided them with minced beef, puppy pellets, my homemade softbill mix and grapes. They liked grapes, so I hung them up by the bunch.

In their first clutch there were four eggs, two of which hatched and both chicks were reared. They then produced a second clutch and reared a further three young to independence. The cycle from the first egg to commencement of the second clutch seemed to be eight to nine weeks. The first two young were left in the aviary during the second nesting. The parents would "purr" over their young with obvious delight.

I supplemented their diet with some crickets during the chicks' first week, though I suspect that most escaped into other aviaries and were consumed by other birds. They would take a few mealworms, though it seemed that the male was interested in them as a display item to impress the female, more than as a regular item of food.

At the time of writing (September), the autumn sunshine has enticed the family to show-off their lovely colours and sway their impressive bills. They seem to have enjoyed the summer and I cannot help but wonder whether they know of their contribution to aviculture in being the first pair of *Pteroglossus viridis* to breed in the UK.

As described above, the Green Aracari *Pteroglossus viridis*, has been bred by Chris Iles. This is probably the first successful breeding of this species in Great Britain or Ireland. Anyone who knows of a previous breeding is asked to inform the Hon. Secretary.

*To learn more about Chris Iles' birds you can visit his website:
www.birdtrek.co.uk*

DUYVENBODE'S LORY: THE HISTORY OF ONE PAIR FROM 1978-2004

by Rosemary Low

I have kept the *Chalcopsitta* lories from New Guinea in my own aviaries since 1971 when I acquired a pair of Black Lories *C. atra*. As Curator of Birds at Loro Parque, Tenerife, and later at Palmitos Park, Gran Canaria, I had many others of this genus in my care, along with up to 200 other species of parrot. I have found Duyvenbode's Lories *C. duivenbodei* to be among the most interesting of all parrots as aviary birds: intelligent, beautiful and very affectionate towards each other. They are almost unsurpassed in affectionate behaviour if hand-reared.



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Adult pair at Jurong BirdPark, Singapore.

In 1984 the late Bob Grantham and I were awarded the medal of the Avicultural Society for the first breeding of Duyvenbode's Lory in Great Britain and Ireland. This breeding was recounted in the *Avicultural Magazine* Vol.90, No.1, pp.18-26. It related to a female imported in October 1973 and a male imported in October 1978. Both were probably only a few months

old at the time of importation. The male was introduced to the female in November 1978. The fact that they made no attempt to breed until 1982 also suggests that the male was young, as this species takes about four years to reach sexual maturity. The young take several years to become fully coloured; perhaps the plumage continues to increase in intensity of colour for some years more. The male of this pair, now 25 years of age, is a very beautiful bird with a remarkable intensity of orange-yellow on the thighs and a more pronounced crescent-shaped area of yellow on the upper breast that overlays the brown feathers, than the female. He has a magnificent 'mane' of golden-yellow streaks on the nape - perhaps a badge of his age (and gender). The female's plumage is only slightly less intense. She is not quite so bold in appearance or demeanour as the male. She has a brown iris whereas that of the male is slightly more reddish brown.



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The first 2004 youngster aged exactly five months. Note the pale periorbital skin typical of immature birds.

The colour scheme of this lory, with its pure daffodil yellow underwing-coverts, orange-tinged yellow thighs, the remarkable yellow crescents at the side of the beak, and yellow forehead, blue-violet rump and rich brown wings and body, is unique in the bird world. It is arguably the most distinctive of all parrots.

In 1987 I went to live in the Canary Islands and this pair of birds remained with Bob Grantham. Following his death in 2002 I collected the two birds from the same aviary in which the pair had resided for more than two decades. Bob had told me that on one occasion the aviary had collapsed and the male and a young bird had escaped. Unfortunately the young one was never seen again but the male returned and was caught. This was predictable because his pair bond with the female is extremely strong. The two are exceptionally compatible.

I was delighted to once again have this pair in my care. They are in excellent condition. I placed them in an aviary measuring 15ft long x 3ft wide x 6ft high (approx. 4.5m long x 1m wide x 1.8m high). This is longer than the aviary in which they lived previously. They had never had access to a shelter; their aviary was alongside a fence in a sheltered position and, of course, they always roosted in their nest-box. I housed them in my only aviary that does not have a shelter attached. The exposed side is protected by bubble-wrap on wooden frames. The nest-box is situated so that it can be inspected from outside in the covered corridor. Given the aggressive nature of these birds when breeding, this is essential.

I always use inverted L-shaped nest-boxes for lories (and most other parrots) as, in my opinion, they have a number of advantages over vertical nest-boxes. The box provided for this pair measures 1ft 4in (approx. 40cm) high, with a 1ft x 10in (approx. 30cm x 25cm) base and the long part of the box (at the top) 1ft 10in (approx. 56cm) in length. Despite the cold weather, the pair nested after only five weeks in my care. There were two eggs, the first of which was laid by February 6th. A chick hatched, probably from the second egg, on or before March 5th. The parents were extremely aggressive and trying to change the nest-litter (wood shavings) at regular intervals was something of a challenge. As usual, the chick was plucked but had feathered-up by the time it left the nest on May 23rd (it is normal for the young of *Chalcopsitta* lories to spend about 80 days in the nest).

The young one was DNA-sexed and found to be a female. She had a close bond with her father and I intended to leave her with her parents for some months. However, after a few days the adult female started to behave as though she was afraid of the young one, so I had to remove the latter to the next-door aviary. The young lory was extremely distressed at being separated from her father. She screamed in anguish for some days and would always hang on the welded wire so as to be as close to him as possible. I felt

sorry for her, as a single *Chalcopsitta* lory is not a happy bird - but I felt that my 30-year old female was much more susceptible to stress than the young one. I was going away on June 3rd for a few days and could take no risks. On my return on June 9th the female was incubating two more eggs. They did not hatch. The young female had settled down. I could not acquire another young bird so she had to remain alone.

In 2003 the pair nested again during the first week in December - unusual behaviour for *Chalcopsitta* lories. There was frost most nights during the incubation period. Nevertheless, a chick had hatched by January 2nd. It caused me much worry by leaving the nest prematurely on March 5th before it could even perch. As the weather remained cold and the chick was plucked on the crown (from where it would lose much body heat), I had no alternative but to take it indoors at night. Catching up the young one was a procedure that caused an enormous amount of stress - not least to me. I knew that both parents would attack me vigorously as I scooped up the young one in a towel and then I had to try to exit the aviary with the angry male clinging to my back. I had anticipated this and wore a quilted jacket and quilted hood. The male is capable of inflicting serious injury.

Once indoors I had the difficult task of trying to feed the growling, struggling young lory. I returned it to the nest-box each morning. This procedure continued until, much to my relief, after three or four nights, it found its way back into the nest on its own. During the second week in April I began to notice the female behaving nervously and flying in panic up and down the aviary. Again it seemed as though she was afraid of the young bird. I was going away on April 15th so had to resolve a potential problem by catching the young one and placing it with its sister in the next aviary. Catching it was an unpleasant experience! Fortunately, the young bird flew out into the covered corridor but the parents were on my back and head attacking me - and it was very difficult to dislodge them. If I had not had the quilted hood of my jacket close around my face I would probably have been scarred for life! Fortunately, the two young birds settled down together very well and are often to be seen rolling around in play on the aviary floor. This behaviour accounts for their less than perfect plumage.

The female nested again quite quickly and laid the first of two eggs on May 5th. Much to my surprise, there were two newly-hatched chicks in the nest on June 2nd. At the time of writing (June 20th) they are nearly three weeks of age. The female's behaviour has surprised me as she allows me to check the nest unchallenged each day when she leaves it. Today I was even able to change the nest litter without her usual display of aggression or histrionics! This was a relief because with two chicks in the nest the wood shavings will need to be changed every few days after the chicks are three weeks of age. Earlier in the year I was not able to do this and, one morning,



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Chicks aged three and five days, weighing 17g and 18g with crops empty.



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Day 20, weighing 75g with crop empty.

when the chick was nearly three weeks of age, the female left the nest with no intention of returning. I found the chick cold and deserted, warmed it up in a brooder, fed it, cleaned out the nest, put in several inches (centimetres) of clean wood shavings and decided to take a chance on returning the chick. It was a cold day so this was risky but I suspected that the female would



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Day 31, weighing 131g with crop empty.

return to the nest as soon as she heard the chick. Fortunately she did so. She had deserted the nest because it was too wet. She is an excellent parent.

I feed the pair fresh, warm nectar at least five times a day. Warm nectar on a cold day is essential as they do not like drinking cold nectar. They also dislike drinking from nearly full containers because the nectar settles, leaving a watery layer on top. Whereas my other *Chalcopsitta* lorries take quite a wide variety of foods in addition to nectar, my Duyvenbode's eat only apple, pear and celery. My nectar mixture has been modified over the years but still has malt extract as the base, fed in equal quantity with honey. As out-of-date baby cereal is no longer available, I feed CéDé Lory, a cereal with egg and all necessary vitamins and minerals.

A heaped dessertspoonful of these three items (the malt and honey dissolved first in hot water) make one litre (approx. 1³/₄ pints) of nectar. When chicks are in the nest at least one feed consists of Nekton Lory instead of my own mixture. This is the only proprietary lory food that I have found to be suitable for *Chalcopsitta* spp. One well-known brand is extremely harmful to these birds and appears to cause liver and/or kidney disorders that result in death. Whereas most *Trichoglossus* lorikeets, for example, can take a wide variety of foods in addition to nectar, because *Chalcopsitta* lorries need a large proportion of nectar in their diet, it must be suitable for these more sensitive species.

My Duyvenbode's Lorries have great presence, perhaps even more so than most *Chalcopsitta* lorries. The male has a very strong personality and

is extremely watchful and inquisitive. Beneath their swing feeders are two large plastic trays to keep clean the aviary floor which consists of pebbles. If the male wishes to attract my attention (such as on the rare occasions when the nectar pot is empty) he will either grab the tray with his beak and move it about or throw pebbles into it. Both these actions make a sound loud enough to alert me. The birds' only fault is their loud voices. The male can make a faultless imitation of nectar being poured from a jug, also the sound of a distant human conversation.

I would be interested to know whether any other pairs that were the subject of a first breeding award 20 or so years ago are still breeding!

Postscript

To my surprise, the female laid two more eggs in mid-November. These hatched on December 17th and 18th, which coincided with a cold spell with below-freezing temperatures at night. I checked the nest-box daily at first light when the female left the nest to feed. On December 28th I found one chick dead in the nest. The previous day had been fine, cold and sunny and I had noticed that the pair had used all their bath water. Possibly the female had been wet when she returned to the nest and the chick had become chilled. Or perhaps it simply had not received enough food.

I removed the other chick immediately and placed it in the brooder that had been plugged in since the chicks hatched. On checking the chick's weight I found that it was below the expected weight for its age - only 29g at 11 days instead of about 40g. The chick was healthy and fed readily. At first I fed it only on Nekton Lori. Eight days later I thickened the food by adding about $\frac{1}{3}$ Lory Cédé and a few days later gave it only Lory Cédé. On January 1st, at 15 days, I ringed the chick with a 7.6mm ring (size S), marked with the year 2005. (At short notice and during the holiday period, Hughes, the maker's, effort to send me the rings on time was greatly appreciated.)

When ringed, the chick's eyes were slit and the eyes and ears were not fully open until day 21. The first wing feathers erupted on day 22 when, incidentally, the white egg tooth was still present as a tiny white dot. By day 23 the toes were in the correct position. By the age of 30 days the chick was very alert and aware of everything going on. By day 31, at the time of writing, the yellow feathers of the throat are just visible and the tail feathers are starting to erupt.

BREEDING THE GREY SEEDEATER

Sporophila intermedia

by Robin Restall

There are several species of grey-coloured seedeaters within the genus *Sporophila* from South America, and between them they range from the Atlantic forest of southern Brazil, northwards, east of the Andes, to Colombia. One species continues into Central America. The Grey Seedeater *S. intermedia* ranges across northern South America, from Guyana in the east to western Colombia. It is primarily a bird of grasslands, and I have found it in savannah, meadows and pastures. I have also found it in rice fields, especially in the tall banks of *Panicum maximum* that can be found on either side of the ditches that run between the rice fields and the roads. Thus, as one drives through the countryside it is fairly commonly seen clinging to tall seeding heads of the grass. The Grey Seedeater also occurs in parks and gardens, usually in untended areas where *P. maximum* grows freely.

It is an accomplished songster, with a loud and attractive roll of warbles and whistles that are expanded into a rich vocabulary as the bird gets older and copies familiar sounds in its environment. It is easy to maintain in captivity, and thus is a favourite for the local bird trade. However, it is too common, and thus low in price, for it to provide a big business opportunity and so it tends to be ignored by the professional trappers.

The male Grey Seedeater is about 11cm (approx. 4¹/₄in) in length and is uniform grey above and below to the breast, with the belly and under tail-coverts white. The feathers of the wings and tail are blackish with grey edges and there is a white patch at the base of the middle primaries. The pale, yellowish bill is a heavy, finch-type bill, with a well-curved culmen. The female is buffy above and cinnamon on the breast, and is pale creamy-whitish on the belly and under tail-coverts. Her bill is very dark brown and is on average slightly larger than that of the male. The legs, toes and nails of both sexes are dark greyish.

It may perhaps be helpful at this point to clarify the characteristics of the various other males in the grey seedeater group, for there are no satisfactory comprehensive colour plates illustrating them in the field guides and handbooks. The Plumbeous Seedeater *S. plumbea* is a pure French grey, with a black bill and a white crescent beneath the eyes. The legs, toes and nails are dark olive. The Slate-coloured Seedeater *S. schistacea* is very similar to the Grey Seedeater, but has an orange bill with a very narrow, scimitar-like upper mandible. It generally has olive-green legs and toes, with pale straw-coloured nails. Some males are almost identical to the male Grey Seedeater, and can only be separated by the bill. The species which is

very easy indeed to confuse with the Grey Seedeater, is the Ring-necked Seedeater *S. insularis*. It was described originally from Trinidad as a subspecies of the Grey Seedeater (Gilliard, 1946), but was subsequently synonymized under it by Meyer de Schauensee (1952). With the increasing scarcity of finches on Trinidad, the only people who knew the Ring-necked Seedeater was a distinct species were the Trinidadian birdkeepers. Very soon all seedeaters disappeared from Trinidad and field observers and ornithologists never had the chance to study it. I recently discovered that it exists happily here in Venezuela and found that it is a distinct species in its own right (Restall, 2002). The key difference is that the male has a whitish band across its rump, which the Grey Seedeater never does. Other differences, like a larger bill, with that of the female on average being smaller than that of the male, and a longer tarsus, are only meaningful in the context of a large series of birds being compared in detail.

We used to live in a house that lay within a golf course in Caracas, and the garden, which was not very large, benefited from the presence of the fairways and woodland copses, and was a haven for birds. In one year I logged 98 species in the garden, including 13 species of hummingbird. Among the seed-eating species that were seen fairly regularly were the Blue-black Grassquit *Volatinia jacarina*, Yellow-bellied Seedeater *S. nigricollis*, Grey Seedeater, Saffron Finch *Sicalis flaveola* and Black-faced Grassquit *Tiaris bicolor*. I built a small birdroom at the back of the house, and in the garden had a large steel-framed aviary built. This covered a walk-around area that was paved with flagstones and had small trees in tubs, and a sloping garden in which grasses and flowering shrubs grew in profusion. There was a small pond about 1.5m (approx. 5ft) square, as well as an old washing sink with a sloping scrubbing ramp that contained water. The enclosure was irregular in shape, with a floor area of about 5m x 7m (approx. 16ft x 22ft) and was 5m (approx. 16ft) high. Big baskets, planted with ferns, hung from the roof. The entrance had a large safety porch and feeding area, which also served as a trap to catch birds when necessary.

Various finches, in the broadest sense of the word, were kept in this idyllic aviary, including two pairs of Grey Seedeaters. One male was richer in coloration than the other. I subsequently learned that *Sporophila* seedeaters generally become richer and more intense in colour as they get older. The older bird moulted into an intense blue-grey and as the rainy season began, it soon came into breeding condition, and chased the other male relentlessly, singing passionately all the while. I knew there was a risk of aggression between them, but thought that the size of the aviary would give both birds enough cover and room to be able to cohabit. Not so. Before I was able to trap the less dominant male, it had been harried to death by the other.

Sporophila seedeaters build a small, compact nest of fibres and fine

straws. It invariably appears to be weak and very fragile, with light showing through at any angle. The Grey Seedeater builds a nest of fine root fibres, and will search for these in an aviary. If provided with coconut fibre it will also use this in the inner lining. The nest site is selected by the female, who carries a fibre to the site and attempts to tie it to part of a fork of small branches. She will make cup-moulding movements on the spot and if satisfied, will bring further fibres and attempt to get the nest started. The male will excitedly bring fibres as well and also attempt to get the nest started, but it is the female that drives things along, and may switch to another site very quickly.

I found the nest in my aviary after it was finished and contained two eggs. The nest was about 5cm (approx. 2in) across the top and 4cm (approx. 1½in) deep. It was bound to a set of slender stems forking into the canopy of a *Ficus benjamina* that was growing in a tub, and was level with the top of my head. It was so close to the top of the *Ficus*, which was well rounded and had been trimmed regularly to form dense cover, that the leaves were only a few centimetres (1in or so) above the top of the nest.

The eggs were pale greyish, spotted and blotched with various browns and umbers. I have no record of the incubation period, but guess it to have been relatively short. Two nestlings fledged after about 10 days. They thrived, being fed by both parents, but a few days later, escaped through the wire mesh. This had been specially made to order, and I had specified 2cm (¾in) including the width of the wire, but this proved to be too generous. The parent birds were retained however.

The feeding station was like a big bird table and held bowls of various seeds and seed mixtures. In addition I usually offer a bowl of softbill mix and another with fruit. However, the *Sporophila* seedeaters were invariably seen feeding only on the seed. They also ate any growing seeds and fed on the plants in the aviary. They nipped and ate the emerging buds on the bamboos and many of the shrubs.

The species adapts well to life under controlled conditions and can be kept fit and in good feather on an all-dry seed diet. The birds usually welcome lettuce and may also take apple. I have never managed to interest them in livefood, however, since then, when I have been able to study other species of *Sporophila* I have seen them continually hunting insects. Also, Grey Seedeaters have been observed catching flying termites. Birds taken as juveniles adapt to a wider variety of foods much better than do wild-caught adults. My birds were in their natural climate and kept under near-natural conditions. I believe they have bred in aviaries in Germany (Sabel, 1990), and possibly in Denmark. I am not aware of any cage breedings.

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The author, who was recently elected a Vice President of the Avicultural Society, lives in Caracas, Venezuela. E-mail: restall@cantv.net

* * *

PLANTING TREES FOR PARROTS

Indaba Inyoni Newsletter of BirdLife South Africa, Vol.7, No.4, 2004, included a report (p.6) about a tree planting scheme aimed at increasing the habitat of the Critically Endangered Cape Parrot *Poicephalus robustus*. In August, to kick start the scheme, some 600 *Podocarpus henkelii* seeds, which had been donated, were planted in a nursery in KwaZulu-Natal. Further seeds of yellowwood trees *Podocarpus* spp. are being collected from various forests in which this parrot occurs.

Seedlings grown from these seeds will later be planted on the peripheries of the forests. Seedlings will also be planted on private land to form a series of corridors linking patches of forest. Several landowners, especially in the Karkloof area, have expressed support for the scheme. Seeds are also being collected from forests in the Eastern Cape in order to establish a similar scheme there.

As a further source of food, pecan nut trees will be planted where forest destruction has forced parrots to move into built-up areas to feed. The group behind the scheme is trying to source a quick growing hybrid pecan nut tree for the scheme and has appealed for pecan nut growers and nurseries to donate trees.

E-mail: caeparrot@birdlife.org.za for further information.

AVICULTURAL MAGAZINE ONLINE INDEX

LETTER FROM THE CHAIRMAN

Mr D Coles
Beale Park
The Child-Beale Trust
Lower Basildon
Reading
Berks
RG8 9NH

Dear Dave

At the last meeting of Council it was freely expressed by all members that the hard work you have put in on the index for the *Avicultural Magazine* is thoroughly appreciated and a big vote of thanks was recorded. It really has been a monumental effort to have undertaken such a task and all aviculturists can be proud and delighted at the outcome. Well done indeed.

I do hope you are keeping well and all the birds are thriving.

Once again many thanks from us all.

Yours sincerely

Christopher Marler
Chairman of Council
Avicultural Society

The index to the Avicultural Magazine 1894-2003 can be accessed on the society's website: www.avisoc.co.uk

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AVICULTURAL MAGAZINE BACK ISSUES

A large stock is available including some early issues. Further details are available from: The Hon. Secretary and Treasurer, The Avicultural Society, Arcadia, The Mounts, Totnes, Devon TQ9 7QJ, UK. E-mail: Paul@pboulden.fsnet.co.uk

NEWS AND VIEWS

PROBABLE FIRST EVER CAPTIVE BREEDING

In April 2004, a pair of Black-browed Barbets *Megalaima oorti* nested in a dead palm and hatched and successfully fledged two chicks at Miami Metrozoo, Florida, USA. It is probably the first time this barbet has ever been bred in captivity. This species then known as Oort's Barbet was probably first imported into the UK by Wilfred Frost in 1930.

* * *

TWENTY-SIXTH PELICAN HATCHED

During the 2004 breeding season, four Pink-backed Pelican *Pelecanus rufescens* chicks were hatched at San Diego Wild Animal Park. It is the only North American collection that breeds this species, and brought the number hatched there to 26.

* * *

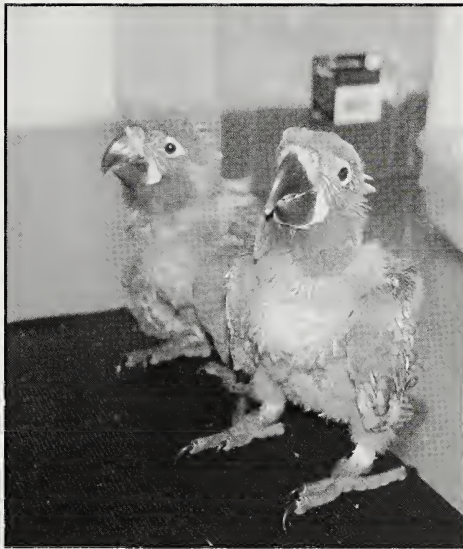
NINETEEN CHICKS HAND-REARED

Staff at World of Birds Wildlife Sanctuary, Hout Bay, South Africa (website: www.worldofbirds.org.za), having obtained two newly imported pairs of Guira Cuckoos *Guira guira*, are now having difficulty accommodating their numerous offspring. They would be having even more difficulty had all 50 eggs that have been laid hatched and if all the chicks hatched had been reared successfully. There were times when there were up to 10 eggs in the bulky nest, which was regularly reconstructed in new locations in the well-planted 15m x 15m (approx. 50ft x 50ft) aviary which they share with a large number of other birds. Within a year 19 chicks were hand-reared. All were taken from the nest before fledging, because the chicks have the habit of jumping out of the nest before it is safe for them to do so. Hand-rearing them is easy and is a pleasure as the birds cooperate so willingly and immediately become trusting and tame.

Manager Hendrik Louw also reported that following a mild winter there had been a very promising start to the new breeding season, with a long list of birds on eggs or rearing chicks. The list included several species of parrot, pigeons and doves, waterfowl and other waterbirds. Other birds on the list included the Pied Starling *Spreo bicolor*, Red-winged Starling *Onychognathus morio*, Von der Decken's Hornbill *Tockus deckeni*, Red-billed Blue Magpie *Urocissa erythrorhyncha*, Brown Pelican *Pelecanus occidentalis*, Saddle-billed Stork *Ephippiorhynchus senegalensis*, Blue, Paradise or Stanley Crane *Anthropoides paradisea* and a number of species of birds of prey and owls.

SUCCESSFUL BREEDING SEASON

Curator David Woolcock reports that they again enjoyed a successful breeding season at Paradise Park Wildlife Sanctuary, Hayle, Cornwall, with the undoubted highlights being the breeding of three species which had not been bred there before. Most important of these was the breeding of the Blue-throated Macaw *Ara glaucogularis*. The birds have been in the collection since 1992, when they were imported from Florida. Never previously having shown any interest in the nest-box, this year the pair produced its first clutch at the end of February and laid a second clutch in March, which was left with the pair but failed to hatch, possibly because the humidity in the nest had not been quite right. When the third clutch was laid in April, the eggs were placed in an incubator and two male chicks were hatched and successfully hand-reared. The park hopes to swap one of them for a female and establish a second breeding pair.



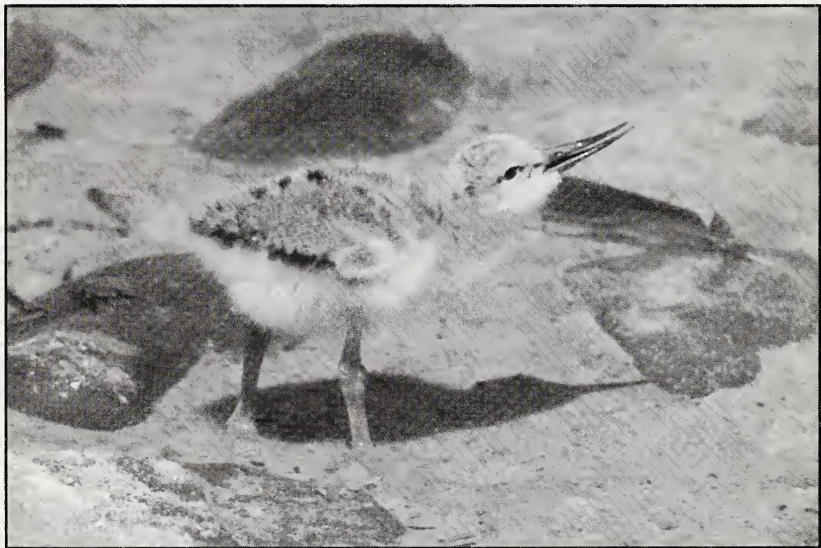
Blue-throated Macaw chicks.

The park (home of the World Parrot Trust) has a special interest in this species and through donations and special events has raised £20,000 (approx. US\$36,000) to support a breeding project in Florida. The project has had considerable breeding success and is about to release a number of these macaws in their native Bolivia. The second species which was bred for the first time at the park was also a parrot. Acquired in 1996, the park's pair of Grey-headed or Cape Parrots, which had not nested before, this year raised two young. A few authors continue to treat this parrot as a subspecies of the Cape Parrot *Poicephalus robustus*, some others treat it as a subspecies of the Brown-necked and some treat it as a full species in its own right, as a

result of which it may be listed as *P. r. suahelicus*, *P. fuscicollis suahelicus* or *P. suahelicus*.

Orange-winged Amazons *Amazona amazonica* raised three lovely young. Other parrot species bred this year included Roseate Cockatoo or Galah *Eolophus roseicapillus*, Lesser Sulphur-crested Cockatoo *Cacatua sulphurea*, Rainbow Lorikeet *Trichoglossus haematodus*, Goldie's Lorikeet *T. goldiei* and Blue-throated Conure *Pyrrhura cruentata*. Golden Conures *Guaruba guarouba* were sitting on eggs at the end of August. White-cheeked Turacos *Tauraco leucotis* and Livingstones's *T. livingstonii* were also sitting. Red-crested Turacos *T. erythrolophus* raised two young earlier in the season. Paradise Park also bred the Luzon Bleeding Heart Dove *Gallicolumba luzonica*.

The third first for the park, was the breeding of the Avocet *Recurvirostris avosetta*. Two pairs were acquired as youngsters in 2000, and this year one of the pairs succeeded in raising four young. Madagascar Teal *Anas bernieri*, Chiloe Wigeon *A. sibilatrix* and Common Eider *Somateria mollissima* were bred. Baikal Teal *A. formosa* hatched but failed to survive. Grey Crowned Cranes *Balearica regulorum gibbericeps* also nested.



Avocet chick.

Gouldian Finches *Chloebia gouldiae* bred well earlier in the year and Nutmeg Finches or Spice Birds *Lonchura punctulata* did even better. The numbers of young reared by both species getting into double figures.

WALLACE'S BIRDS OF PARADISE

In *The Birds of Paradise* by Frith and Beehler (Oxford University Press, 1998), at the end of the Greater Bird of Paradise *Paradisaea apoda* species account, it is mentioned that Pennant noted a living bird was sent to England prior to 1790, but no evidence is offered that it reached here alive. Probably the first living birds of paradise to arrive in England and the first seen alive anywhere in Europe were two male Lesser Birds of Paradise *P. minor* purchased for London Zoo in Singapore by Alfred Russel Wallace and brought to London by him early in 1862. On arrival they were housed in a large cage in the Zoological Society's old museum, but immediately had to be separated because they fought. The sight of one another or even a plume waved near them was said to have produced great excitement.

The Council Minutes for August 17th 1859, show that the zoo agreed to pay Wallace £100 (approx. US\$180) for the first bird, £50 (approx. US\$90) for the second and £25 each (approx. US\$45) for any others (up to 10). April 16th 1862, it was unanimously agreed to pay him the sum of £307.9s.0d (approx. US\$550). He was to receive £150.0s.0d (approx. US\$270) for the two birds, £137.3s.0d (approx. US\$250) for his passage from Singapore to London and £20.6s.0d (approx. US\$36) for sundry expenses.

In 1881, the Zoological Society of London purchased a Red Bird of Paradise *P. rubra*, a Twelve-wired *Seleucidis melanoleuca* and a Crinkle-collared Manucode *Manucodia chalybata*, and the following year obtained a Paradise Riflebird *Ptiloris paradiseus*.

* * *

HOW TIMES CHANGE

In 1871, London Zoo paid £120 (approx. US\$220), almost as much as was paid for the two birds of paradise above, for two male Lady Amherst's Pheasants *Chrysolophus amherstiae*. According to Bo Beolens and Michael Watkins in their recently published book *Whose Bird? Men and Women Commemorated in the Common Names of Birds* (Helm, 2003), this species is named after Sarah Countess Amherst (1762-1838), wife of William Pitt Amherst, Governor General of Bengal from 1822-1828. Lord Amherst was responsible for sending the first example of this pheasant to London in 1828. Unfortunately the bird failed to survive the journey, however, the specimen enabled Leadbeater to describe this now familiar species. The first live specimen reached London in July 1869.

* * *

GULF SUCCESS

Dubai Zoo, a small zoo in the United Arab Emirates, is believed to be the first collection anywhere in the world to have bred the Socotra Cormorant *Phalacrocorax nigrogularis*. It currently has 30 of these cormorants and has so far raised eight chicks.

PROBABLY NAMED AFTER JEAN PECQUET

In News & Views Vol.109, No.3, p.142 (2003), the question was asked, who was Pesquet after whom Pesquet's Parrot *Psittirichas fulgidus* is named? The question was asked on behalf of Bo Beolens and Michael Watkins, authors of *Whose Bird? Men and Women Commemorated in the Common Names of Birds* (Helm, 2003). Members were unable to provide the answer.

Now, Michael Watkins has written to say that after nearly four years of searching and considerable confusion over spellings and names, they are 99.99% sure that it is named after Jean Pecquet (1622-1674), who was a famous French anatomist. They believe that René Pierre Lesson named the species *Banksianus fulgidus* in 1829, so that name has priority, but in 1830 named it *Dasyptilus pecquetii* and that got corrupted to *Dasyptilus pesquetii*, with *Psittirichas* later being adopted as the generic name. It is a bird that was illustrated by Gould and the English name possibly came from him as he used the name *Dasyptilus pesqueti* on his engraving.

The species was collected during the 1826-1829 circumnavigation by the French vessel *L'Astrolabe*, which was also known by its previous name, *La Coquille*. René Pierre Lesson's brother Pierre Adolphe Lesson was on board during the circumnavigation as the ship's surgeon and naturalist, and the authors believe he almost certainly collected the parrot and on his return gave the specimen to his brother, René Pierre, who described the species.

* * *

NEVER PREVIOUSLY BRED

A Great Green Macaw *Ara ambigua* more than 30 years of age, which had never previously bred successfully, has done so for the first time at the breeding centre of the Loro Parque Fundación in Tenerife. Received last year from Basel Zoo, the male was paired with a younger female this spring and the pair produced two young. Yellow-crowned Amazons *Amazona ochrocephala xantholaema* bred there for the first time in 2003 and this year two different parents raised three chicks. Scaly-naped Amazons *A. mercenaria* fledged three young and Red-browed Amazons *A. rhodocorytha* fledged two young.

* * *

SECOND GENERATION CAPTIVE-HATCHED

A pair of Rhinoceros Hornbills *Buceros rhinoceros* which have lived together since 1994 at Phoenix Zoo, Arizona, USA, last year succeeded in hatching a chick. It was the first time that this species has bred at the zoo. The chick is thought to be one of the few hornbills - if not the only one - to have been bred from captive-hatched parents. The 15 year old male has been at the zoo since 1991, and was paired with the 11 year-old female after she arrived at the zoo in 1993.

NEWS FROM TEXAS

At the end of September 2004, Josef and Natalie Lindholm took up positions at The Dallas World Aquarium (website: www.dwazoo.com). Judging by the guide they sent, it is much more than just an aquarium. It has for example a fantastic collection of birds. These include 22 forms of toucans, aracarís and toucanets. Josef's work area is a roof garden (surrounded by skyscrapers), where there are 23 pairs, including Ivory-billed *Pteroglossus flavirostris*, Many-banded *P. pluricinctus* and Curl-crested Aracarís *P. beauharnaesii*, occupying cages arranged around a lushly planted flight which is home to six male and five female Guyana Cock-of-the-Rock *Rupicola rupicola*. He also works with Ocellated Turkeys *Agriocharis ocellata* and several pairs of North American hummingbirds set up for breeding.

Natalie cares for nine pairs of rhamphastids, as well as Hawk-headed Parrots *Derophtus accipitrinus*, Pompadour Cotingas *Xipholena punicea*, Yellow-knobbed Curassows *Crax daubentoni* and Argus Pheasants *Argusianus argus*, and was about to take charge of five pairs of Andean Cock-of-the-Rock *R. peruviana*. She is also responsible for the Jaguars *Panthera onca*, Ocelots *Leopardus pardalis* and Giant Otters *Pteronura brasiliensis*.

Josef has promised to write about the history of the bird collection, from its beginning in 1995 through to the present, and thereafter submit annual reports.

* * *

AVICULTURE CONVENTION IN IRELAND

Carrigaline & District Budgerigar and Foreign Bird Club, County Cork, is hosting an Aviculture Convention at the Carrigaline Court Hotel. Starting on the evening of Friday, April 1st, there will be a fun quiz night, then on the Saturday and Sunday, April 2nd and April 3rd, there will be talks, a pet fair, which will include a display of birds, as well as birds for sale and trade stands. For further details e-mail: bird@esatclear.ie or Budgie_foreign@esatclear.ie or contact the Secretary Brendan O'Brien, tel: 00 353 (Republic of Ireland) 21 4371603. There is also a website - www.esatclear.ie/~budgie/ - which has the latest up to date information.

OBITUARY

Janet Kear

Janet Kear, whose death was announced in November 2004, was one of the UK's most respected ornithologists and an internationally recognised authority on waterfowl. She joined the staff of the Wetlands & Wildfowl Trust as a research scientist and worked closely with Sir Peter Scott during the 1960s, during which she played a leading role in the establishment of a breeding programme for the then endangered Hawaiian Goose.

Janet held a number of important positions including those of Principal Scientific Officer and Avicultural Co-ordinator with the WWT, later becoming Curator of its Martin Mere reserve in Lancashire, a post which she held from 1977-1990.

She served on the councils of the Avicultural Society, British Trust for Ornithology, Council for the Study of Bird Behaviour, Royal Society for the Protection of Birds, Jersey Wildlife Preservation Trust and English Nature. She was the first woman to become Vice President of the British Ornithologists' Union (1989-1991) and was subsequently President (1991-1995). Between 1980-1988 she was Editor of *Ibis*.

In 1990 Liverpool John Moores University conferred on her an honorary professorship and in 1993 she was awarded the OBE for services to conservation.

Janet Kear was author of *The Mute Swan* (1989), *Man and Waterfowl* (1990) and *Ducks of the World* (1991). She was a co-author of *Hawaiian Goose* (1980) and *Waterfowl* (1985). Her sixth book, *Ducks, Geese and Swans*, is due to be published in the spring of 2005.

Frank Woolham

* * *

US BANK ACCOUNT

Those who would prefer to make payments in US dollars are reminded that the society now has a US bank account. Overseas membership for 2005 will remain at US\$38 for receiving the magazines by regular mail or US\$50 for air mail. Checks and money orders should be made payable to The Avicultural Society and sent to: The Avicultural Society, c/o Jane Cooper, 12650 Hearst Road, Willits, California 95490-9231, USA.

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LORO PARQUE FUNDACIÓN COMMITS RECORD AMOUNT FOR CONSERVATION

The Loro Parque Fundación, which recently celebrated the 10th anniversary of its creation in 1994, in October announced that it will commit a record 500,000 Euros (approx. £350,000 or US\$650,000) to conservation projects in 2005. The aim of most of the projects is to help save threatened species, especially species of parrot, the group of birds with which the fundación has internationally recognised expertise.

The fundación is advised by international experts such as Professor Ian Swingland of the Durrell Institute of Conservation and Ecology, Dr Nigel Collar of BirdLife International, Dr Jorgen Thomsen of Conservation International, Dr Wolf Iwand of TUI and Dr Tomás de Azcárate y Bang of the Institute of Responsible Tourism. The advisors assessed the merits of the many conservation proposals which had been received and gave their recommendations which led the board to make the momentous decision to commit more funding than in any previous year.

Loro Parque heads the list of major sponsors. Dr Iwand, representing TUI, another of the major sponsors, gave an impassioned plea for the business community to increase corporate responsibility for the environment by supporting the fundación. Speaking after the meeting, Wolfgang Kiessling, President of the Loro Parque Fundación said, "The Loro Parque Fundación has shown 10 years of steady growth, and to date has spent almost 2.5 million Euros (approx. £1.7 million or US\$3.3million) to help save the natural treasures of the planet."

The 18 main conservation projects which will benefit in 2005 are in many parts of the world and will involve a diverse range of collaborations with government agencies, non-governmental organisations, universities and local community groups. Loro Parque having recently fledged a Spix's Macaw *Cyanopsitta spixii*, it is appropriate that the projects include the Spix's Macaw Recovery Programme. Two of the four most threatened parrots of Venezuela, the Yellow-shouldered Amazon *Amazona barbadensis* and Blue-headed Conure *Aratinga acuticaudata neoxema* of Margarita Island, will be beneficiaries of an extensive environmental programme, and similar activities will take place in the Philippines to help conserve the Philippine Cockatoo *Cacatua haematuropygia*. In Thailand, where the Loro Parque Fundación already assists with conservation in the Phu Khieo Wildlife Sanctuary in a special project of HM King Bhumibol, there will be education programmes in local communities and the training of forest officers.

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